

CACHE MOUNTAIN FIELD REPORT

Dean Warner
Bu Mines

Introduction

Cache Mountain is located in the SW 1/4 Livengood C1 and NW 1/4 Livengood B1 Quadrangles, approximately 40 miles north of Fairbanks, Alaska. Cache Mountain is underlain by one of several biotite granite plutons ~~in the vicinity~~ that form a highland area known as the White Mountains. The Bureau of Mines spent one day (Sept. 11, 1984) conducting a pan concentrate survey and helicopter reconnaissance of the Cache Mountain pluton for tin deposits.

Investigations

The accompanying figure shows results of limited geologic mapping and sample locations. Identical to the Lime Peak pluton to the northeast, the Cache Mountain pluton is a composite intrusion comprising at least four distinct rock types. The most common rock type is a fine- to moderately fine-grained porphyritic to seriate biotite granite; this rock corresponds to the "Tgf" unit at Lime Peak. A coarser biotite granite, corresponding to the "Tgb" unit at Lime Peak, underlies many of the tors in the area. Finely crystalline smoky quartz-biotite/muscovite(?) tourmaline granite was observed in one locality. Ternary plots of A-F-M and $\text{Na}_2\text{O}-\text{K}_2\text{O}-\text{CaO}$ show this rock to be very similar to the "Tgm" unit at Lime Peak, which is an alkali(~~sodium~~) ~~vs. potassium~~-enriched granite. At Cache Mountain, this rock is much more enriched in SiO_2 than that at Lime Peak, but has an SiO_2 concentrations very similar to that of the "Tg seriate" phase of the Circle intrusion. The youngest rock at Cache Mountain

appears to be a porphyritic rhyolite, which again has a counterpart at Lime Peak (unit "Tr").

Only one occurrence of potential mineralization was identified and sampled: 1,050 ppm Sn was found in sample CI21655. This sample consisted of a grab of float over a 50 ft diameter area. The high-graded pieces consisted of quartz-chlorite altered finely crystalline granite with minor limonite. This sample location forms the approximate NE corner of the "Bee" claim group, which were staked in 1977 for MapCo and subsequently dropped.

From 370 to 2,390 ppm Sn and 200 to 400 ppm W was found in pan concentrate samples collected from creeks radiating from Cache Mountain. In comparison to tin values in pan concentrates collected elsewhere in the White Mountain upland area, none of the Cache Mountain values are highly anomalous. The most significant of the anomalies, however, occurs in the headwaters of Brigham Creek, approximately 2 miles downstream of the mineralization represented by sample CI21655.

Conclusions

The Cache Mountain pluton is one of several plutons that form an upland area north of Fairbanks known as the White Mountains. The Cache Mountain pluton comprises 4 phases that have identical counterparts to units of the Lime Peak pluton. A tourmaline granite sampled at Cache Mountain is very similar to the "Tgm" phase at Lime Peak, which is distinctly enriched in alkalis, especially sodium. Unlike the Lime Peak pluton, only one occurrence of tin mineralization was identified at Cache Mountain and pan concentrate samples contain

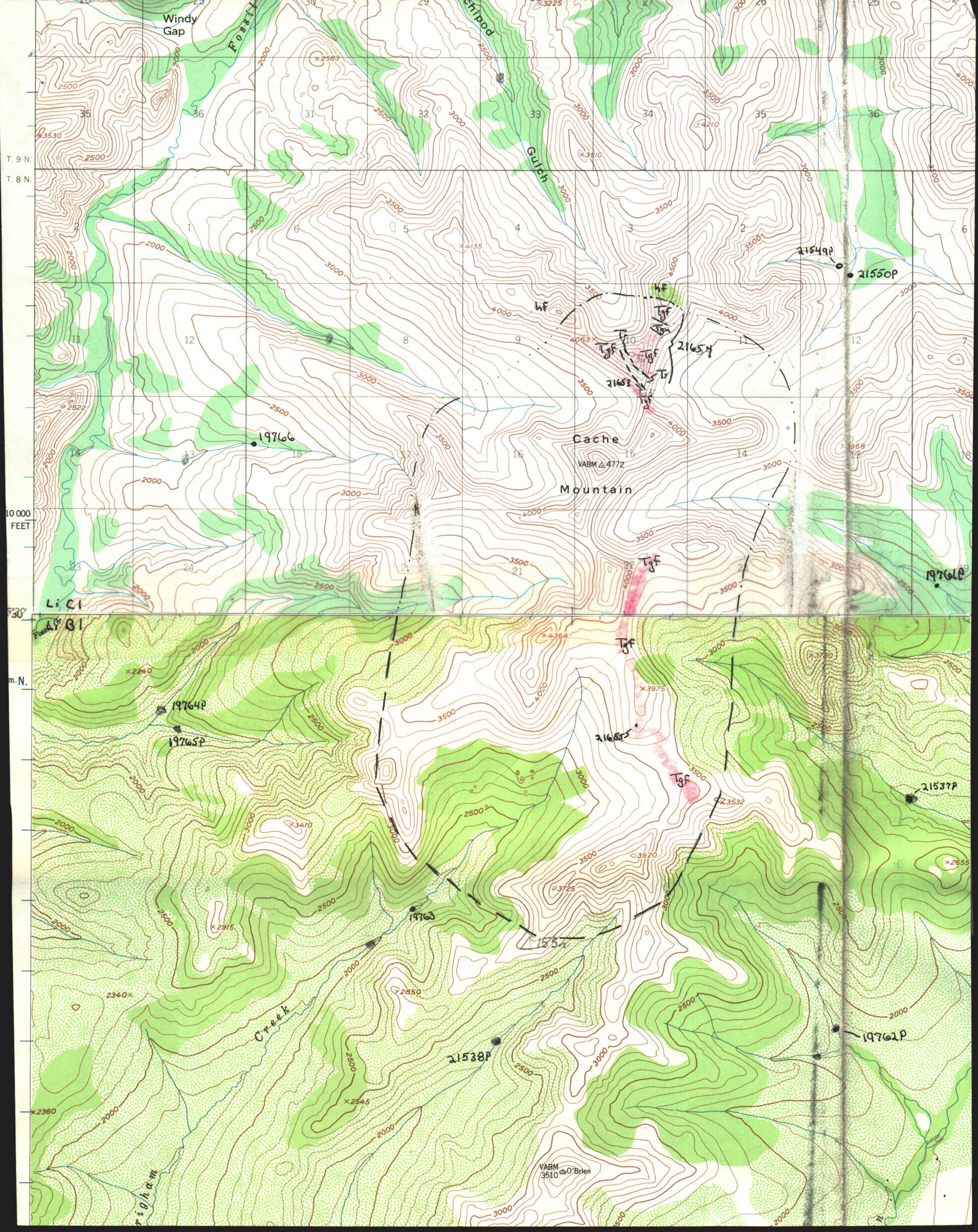
only moderately elevated concentrations of tin. A permissible conclusion is that the Cache Mountain pluton is chemically very similar to the Lime Peak pluton but has not suffered the post-magmatic faulting that resulted in low-grade mineralization at Lime Peak.

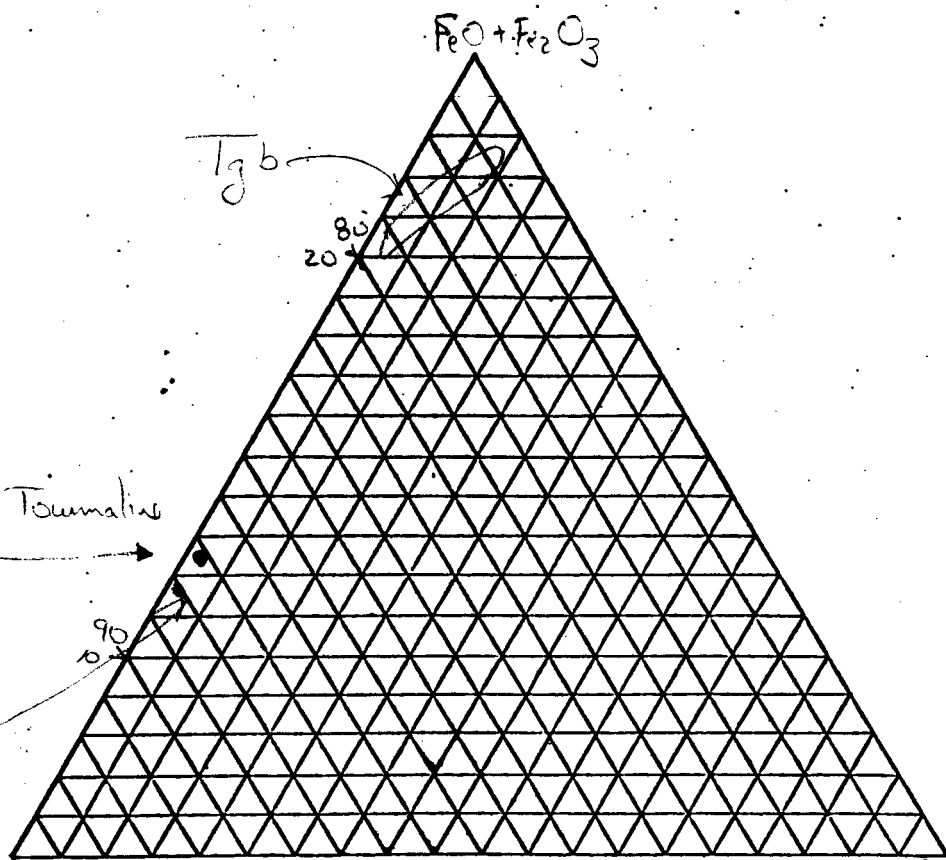
in ppm)
Table 1. - Panned concentrate analyses¹ from Cache Mountain

Sample	Sn	W	Ta	Nb	Description
Ci19761	370	200	<100	<50	Full ² pan reduced to 11.0 g, large boulders in creek.
Ci19762	900	300	<100	<50	Full pan reduced to 13.3 g.
Ci19763	2390	600	<100	<50	Full pan reduced to 10.8 g, sample in cutbank.
Ci19764	1150	300	<100	<50	Full pan reduced to 11.6 g, lots of gruss.
Ci19765	640	200	<100	<50	Full pan reduced to 14.1 g, lots of gruss.
Ci19766	620	200	<100	<50	Full pan reduced to 14.0 g, lots of gruss.
Ci21537	1870	400	<100	<50	Full pan reduced to 12.6 g, large boulders.
Ci21538	510	300	<100	<50	Full pan reduced to 10.0 g.
Ci21549	1590	400	<100	<50	Two full pans reduced to 13.9 g, lots of boulders.
Ci21550	1020	400	<100	<50	Full pan reduced to 14.0 g.

¹Analyses by X-ray fluorescence performed by Reno Research Laboratory, Reno Nevada.

²"Full" refers to screened minus-1/4 inch material.





$\text{FeO} + \text{Fe}_2\text{O}_3$

Tgb

80
20

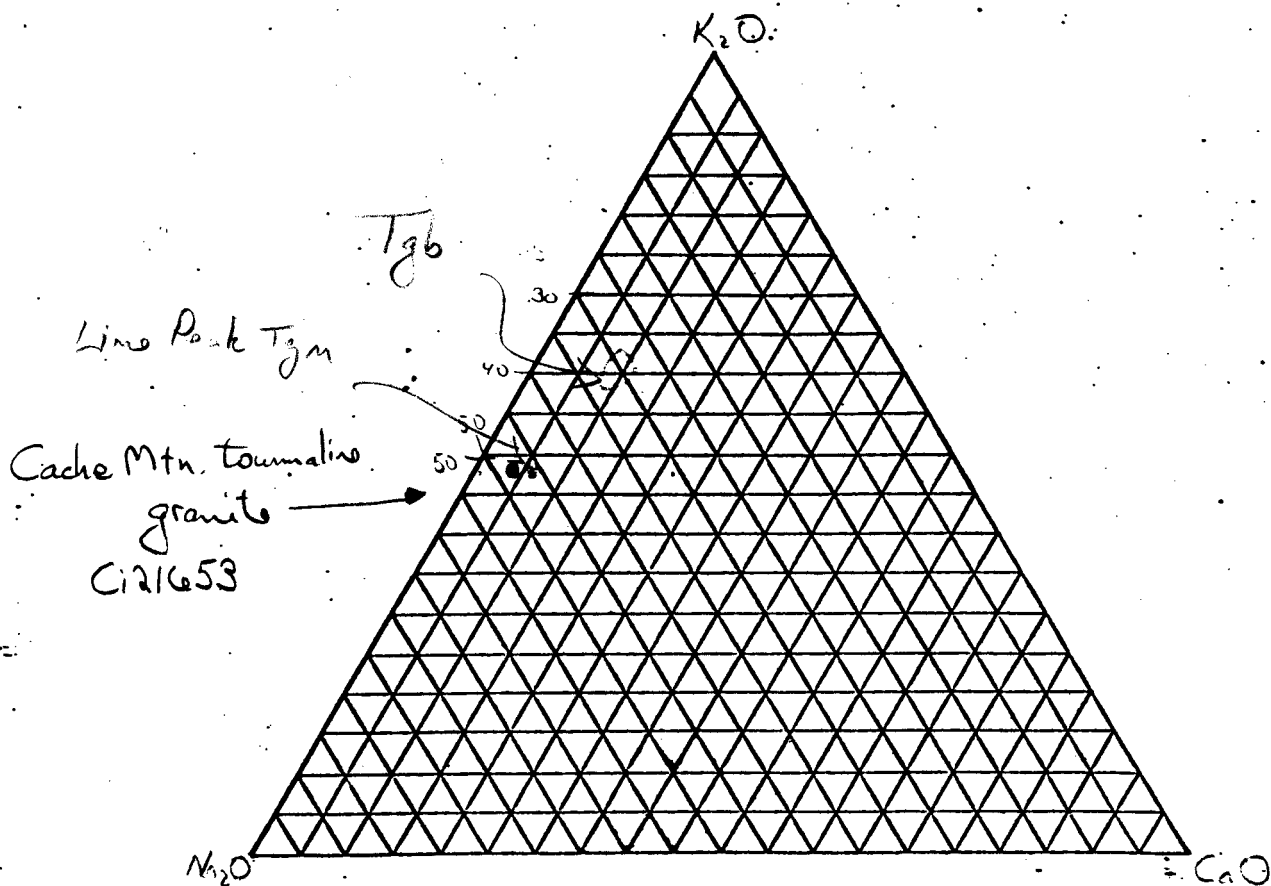
90
10

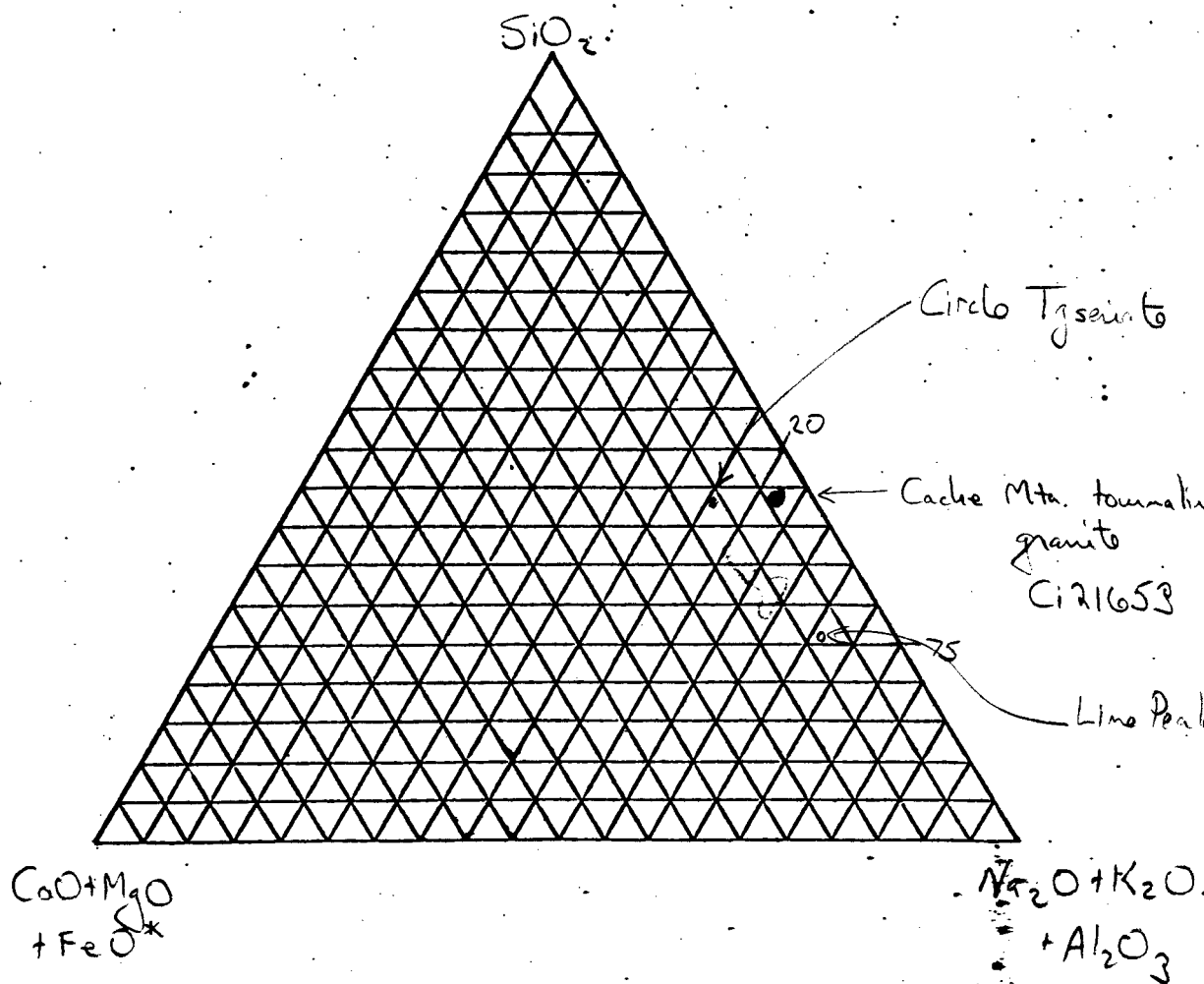
Cache Mtn. Tournaius
granit
C121653

Limo Peak
Tgm

$\text{K}_2\text{O} + \text{Na}_2\text{O}$

MgO





* FeO:Fe₂O₃ calculated as 1:1

Samp. no.	*	Sn	
AF-21653	E	<5.0ppm	} Ci Cache Mtn.
AF-21655	E	.105wt%	
AF-21646	E	<5.0ppm	
AF-21647	E	<5.0ppm	} AS Long Creek
AF-21648	E	.031wt%	
AF-21649	E	11.5ppm	
AF-21650	E	<5.0ppm	
AF-21652	E	<5.0ppm	

Remarks * Indicates concs. reported as oxide 'O', or elem. 'E'
Oxides are SnO2

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INDUCTIVELY COUPLED PLASMA ANALYSIS

SUBMITTED BY: ALASKA DATE SUBMITTED: 10/10/84
 SAMPLE SET NO.: 868 ANALYST: W BARRY DATE COMPLETED: 11/20/84

SAMPLE	AL2O3	CAO	FE2O3	K2O	MGO	NA2O	P2O5
AF-CI-21653	11.9%	0.34%	1.3%	3.6%	350	3.6% *	160

SAMPLE	SI02	TIO2
CI-21653	74.4%	590

95.23

Cache Mtn.

RESULTS ARE REPORTED IN PPM UNLESS OTHERWISE INDICATED
 (UG/ML=MICROGRAMS/ML; G=GRAMS/L)

NOTE: < INDICATES THAT THE RESULT IS LESS THAN THE GIVEN VALUE
 * INDICATES THAT THE RESULT IS NEAR THE DETECTION LIMIT
 AND MUST BE INTERPRETED ACCORDINGLY

Cacho Htn.

Date: 10 Oct 1984

Sample No.	W
AF-CI 21653	6
21655	<5

Remarks:

Reported as A. g/l
 B. µg/ml (D) ppm element unless otherwise noted.
 C. % E. oz/ton oxide

Analyst: PH Date: 19 Nov 1984

B

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SPECTROGRAPHIC LABORATORY REPORT

SUBMITTED BY-ALASKA
DATE SUBMITTED-10/10/84

DATE COMPLETED-10/31/84
OPERATOR-DFH RUN NO.-46-#868

SAMPLE NUMBERS

CI21653 CI21655

ELEMENTS

CONCENTRATION, PERCENT

AG	<.002	<.008
AL	>7.	>5.
AS	.04	<.02
AU	<.003	<.002
B	.02	.02
BA	.005	.03
BE	.002	.003
BI	<.05	<.03
CA	1.	<.06
CD	<.0005	<.0005
CO	<.001	<.001
CR	.009	.002
CU	<.0006	.001
FE	3.	7.
GA	.002	<.0008
K	>10.	>10.
LA	<.01	<.01
LI	>.04	>.09
MG	.02	.1
MN	.1	>3.
MO	<.0001	<.0001
NA	9.	<.3
NB	<.03	<.01
NI	.002	.002
P	<.7	<1.
PB	.01	.03
PD	<.0001	<.0001
PT	<.0006	<.0009
SB	<.06	<.06
SC	<.0004	<.0004
SI	>10.	>10.
SN	<.008	<.1
SR	<.0001	<.0001
TA	<.02	<.02
TE	<.1	.1
TI	<.06	<.07
V	<.005	<.005
Y	<.0009	<.0009
ZN	.001	.04
ZR	<.003	<.003

Cache Mtn

REMARKS